

SEQUENCE LISTING

<110> Nemerow, Glen R.
Li, Erguang

<120> BIFUNCTIONAL MOLECULES AND VECTORS COMPLEXED THEREWITH FOR TARGETED GENE DELIVERY

<130> 22908-1228

<140> Herewith

<141> 2001-07-10

<150> converted to a provisional from 09/613,017)

<151> 2000-07-10

<160> 33

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 1516
<212> DNA
<213> Mouse

<220>

<221> CDS

<222> (28) . . . (1395)

<223> DAV-1 heavy chain, penton base monoclonal antibody

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Met Gly Trp Ser Trp Ile Phe Leu Phe
1 5

ctc ctg tca gga act gca ggc gtc cac tct gag gtc cag ctt cag cag 102
 Leu Leu Ser Gly Thr Ala Gly Val His Ser Glu Val Gln Leu Gln Gln
 10 15 20 25

tca gga cct gag ctg gtg aaa cct ggg gcc tca gtg aag ata tcc tgc 150
 Ser Gly Pro Glu Leu Val Lys Pro Gly Ala Ser Val Lys Ile Ser Cys
 30 35 40

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aag gct tct gga tac aca ttc act gac tac aac atg cac tgg gtg aag      198
Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr Asn Met His Trp Val Lys
                         45          50          55

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cag agc cat gga aag agc ctt gag tgg att gga tat att tat cct tac 246
 Gln Ser His Gly Lys Ser Leu Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr
 60 65 70

aaa ggt ggt act ggc tac aac cag aag ttc aag aac aag gcc aca ttg 294
 Lys Gly Thr Gly Tyr Asn Gln Lys Phe Lys Ser Lys Ala Thr Leu
 75 80 85

aca aca gac agt tcc tcc aac aca gac tac atg gag ctc cgc agc ctg 342
 Thr Thr Asp Ser Ser Asn Thr Ala Tyr Met Glu Leu Arg Ser Leu
 90 95 100 105

aca tct gat gcc tct gca gtc tat tac tgt gca aga ggg att gct tac 390
Thr Ser Asp Ala Ser Ala Val Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr
110 115 120

TRANSLATION

tgg ggc caa ggg act ctg gtc act gtc tct gca gcc aaa acg aca ccc	438
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Ala Lys Thr Thr Pro	
125 130 135	
cca tct gtc tat cca ctg gcc cct gga tct gct gcc caa act aac tcc	486
Pro Ser Val Tyr Pro Leu Ala Pro Gly Ser Ala Ala Gln Thr Asn Ser	
140 145 150	
atg gtg acc ctg gga tgc ctg gtc aag ggc tat ttc cct gag cca gtg	534
Met Val Thr Leu Gly Cys Leu Val Lys Gly Tyr Phe Pro Glu Pro Val	
155 160 165	
aca gtg acc tgg aac tct gga tcc ctg tcc agc ggt gtg cac acc ttc	582
Thr Val Thr Trp Asn Ser Gly Ser Leu Ser Ser Gly Val His Thr Phe	
170 175 180 185	
cca gct gtc ctg cag tct gac ctc tac act ctg agc agc tca gtg act	630
Pro Ala Val Leu Gln Ser Asp Leu Tyr Thr Leu Ser Ser Val Thr	
190 195 200	
gtc ccc tcc agc acc tgg ccc agc gag acc gtc acc tgc aac gtt gcc	678
Val Pro Ser Ser Thr Trp Pro Ser Glu Thr Val Thr Cys Asn Val Ala	
205 210 215	
cac ccg gcc agc agc acc aag gtg gac aag aaa att gtg ccc agg gat	726
His Pro Ala Ser Ser Thr Lys Val Asp Lys Lys Ile Val Pro Arg Asp	
220 225 230	
tgt ggt tgt aag cct tgc ata tgt aca gtc cca gaa gta tca tct gtc	765
Cys Gly Cys Lys Pro Cys Ile Cys Thr Val Pro Glu Val Ser Ser Val	
235 240 245	
ttc atc ttc ccc cca aag ccc aag gat gtg ctc acc att act ctg act	822
Phe Ile Phe Pro Pro Lys Pro Lys Asp Val Leu Thr Ile Thr Leu Thr	
250 255 260 265	
cct aag gtc acg tgt gtt gtg gta gac atc agc aag gat gat ccc gag	870
Pro Lys Val Thr Cys Val Val Asp Ile Ser Lys Asp Asp Pro Glu	
270 275 280	
gtc cag ttc agc tgg ttt gta gat gat gtg gag gtg cac aca gct cag	918
Val Gln Phe Ser Trp Phe Val Asp Asp Val Glu Val His Thr Ala Gln	
285 290 295	
acg caa ccc cgg gag gag cag ttc aac agc act ttc cgc tca gtc agt	966
Thr Gln Pro Arg Glu Glu Gln Phe Asn Ser Thr Phe Arg Ser Val Ser	
300 305 310	
gaa ctt ccc atc atg cac cag gac tgg ctc aat ggc aag gag ttc aaa	1014
Glu Leu Pro Ile Met His Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys	
315 320 325	
tgc agg gtc aac agt gca gct ttc cct gcc ccc atc gag aaa acc atc	1062
Cys Arg Val Asn Ser Ala Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile	
330 335 340 345	
tcc aaa acc aaa ggc aga ccg aag gct cca cag gtg tac acc att cca	1110
Ser Lys Thr Lys Gly Arg Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro	
350 355 360	
cct ccc aag gag cag atg gcc aag gat aaa gtc agt ctg acc tgc atg	1158

Pro Pro Lys Glu Gln Met Ala Lys Asp Lys Val Ser Leu Thr Cys Met			
365	370	375	
ata aca gac ttc ttc cct gaa gac att act gtg gag tgg cag tgg aat		1206	
Ile Thr Asp Phe Phe Pro Glu Asp Ile Thr Val Glu Trp Gln Trp Asn			
380	385	390	
ggg cag cca gcg gag aac tac aag aac act cag ccc atc atg gac aca		1254	
Gly Gln Pro Ala Glu Asn Tyr Lys Asn Thr Gln Pro Ile Met Asp Thr			
395	400	405	
gat ggc tct tac ttc gtc tac agc aag ctc aat gtg cag aag agc aac		1302	
Asp Gly Ser Tyr Phe Val Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn			
410	415	420	425
tgg gag gca gga aat act ttc atc tgc tct gtg tta cat gag ggc ctg		1350	
Trp Glu Ala Gly Asn Thr Phe Ile Cys Ser Val Leu His Glu Gly Leu			
430	435	440	
cac aac cac cat act gag aag agc ctc tcc cac tct cct ggt aaa		1395	
His Asn His His Thr Glu Lys Ser Leu Ser His Ser Pro Gly Lys			
445	450	455	
tgatcccaagt gtccttggag ccctctggtc ctacaggact ctgtcaccta cctccacccc		1455	
tccctgtata aataaagcac ctagactgc cttgggaccc tgcaataaaa aaaaaaaaaa		1515	
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<212> PRT			
<213> Mouse			
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<221> PEPTIDE			
<222> (0)...(0)			
<223> DAV-1 heavy chain, penton base monoclonal antibody			
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Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys			
20 25 30			
Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe			
35 40 45			
Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu			
50 55 60			
Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn			
65 70 75 80			
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Asn			
85 90 95			
Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val			
100 105 110			
Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val			
115 120 125			
Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala			
130 135 140			
Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu			
145 150 155 160			
Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly			
165 170 175			
Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp			
180 185 190			

Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu Lys
 435 440 445
 Ser Leu Ser His Ser Pro Gly Lys
 450 455

<210> 3
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<220>
 <221> CDS
 <222> (13)...(726)
 <223> DAV-1 light chain, penton base monoclonal antibody

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 Met Glu Thr Asp Thr Ile Leu Leu Trp Val Leu Leu Leu
 1 5 10
 tgg gtt cca ggc tcc act ggt gac att gtg ctg acc caa tct cca gct
 Trp Val Pro Gly Ser Thr Gly Asp Ile Val Leu Thr Gln Ser Pro Ala
 15 20 25
 tct ttg gct gtg tct cta ggg cag agg gcc acc atc tcc tgc aag gcc
 Ser Leu Ala Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala
 30 35 40 45
 agc caa agt gtt gat tat gat ggt gat agt tat atg aac tgg tac caa
 Ser Gln Ser Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln
 50 55 60

51

99

147

195

2007/08/26

cag aaa cca gga cag cca ccc aaa ctc ctc atc tat gct gca tcc aat	243
Gln Lys Pro Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn	
65 70 75	
tta gaa tct ggg atc cca gcc agg ttt agt ggc agt ggg tct ggg aca	291
Leu Glu Ser Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr	
80 85 90	
gac ttc acc ctc aac atc cat cct gtg gag gag gag gat gct gca acc	339
Asp Phe Thr Leu Asn Ile His Pro Val Glu Glu Asp Ala Ala Thr	
95 100 105	
tat tac tgt cag caa act aat gag gat ccg tgg acg ttc ggt gga ggc	387
Tyr Tyr Cys Gln Gln Thr Asn Glu Asp Pro Trp Thr Phe Gly Gly Gly	
110 115 120 125	
acc aag ctg gaa atc aaa cgg gct gat gct gca cca act gta tcc atc	435
Thr Lys Leu Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile	
130 135 140	
ttc cca cca tcc agt gag cag tta aca tct gga ggt gcc tca gtc gtg	483
Phe Pro Pro Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val	
145 150 155	
tgc ttc ttg aac aac ttc tac ccc aaa gac atc aat gtc aag tgg aag	531
Cys Phe Leu Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys	
160 165 170	
att gat ggc agt gaa cga caa aat ggc gtc ctg aac agt tgg act gat	579
Ile Asp Gly Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp	
175 180 185	
cag gac agc aaa gac agc acc tac agc atg agc agc acc ctc acg ttg	627
Gln Asp Ser Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu	
190 195 200 205	
acc aag gac gag tat gaa cga cat aac agc tat acc tgt gag gcc act	675
Thr Lys Asp Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr	
210 215 220	
cac aag aca tca act tca ccc att gtc aag agc ttc aac agg aat gag	723
His Lys Thr Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu	
225 230 235	
tgt tagagacaaa ggtcctgaga cgccaccacc agctccccag ctccatccta	776
Cys	
tctcccttc taaggtcttg gaggcttcct cgagcggtaa agggcgaatt ccagc	831
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<222> (0)...(0)	
<223> DAV-1 light chain, penton base monoclonal antibody	
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 Gly Ser Thr Gly Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala
 20 25 30
 Val Ser Leu Gly Gln Arg Ala Thr Ile Ser Cys Lys Ala Ser Gln Ser
 35 40 45
 Val Asp Tyr Asp Gly Asp Ser Tyr Met Asn Trp Tyr Gln Gln Lys Pro
 50 55 60
 Gly Gln Pro Pro Lys Leu Leu Ile Tyr Ala Ala Ser Asn Leu Glu Ser
 65 70 75 80
 Gly Ile Pro Ala Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr
 85 90 95
 Leu Asn Ile His Pro Val Glu Glu Asp Ala Ala Thr Tyr Tyr Cys
 100 105 110
 Gln Gln Thr Asn Glu Asp Pro Trp Thr Phe Gly Gly Thr Lys Leu
 115 120 125
 Glu Ile Lys Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro
 130 135 140
 Ser Ser Glu Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu
 145 150 155 160
 Asn Asn Phe Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly
 165 170 175
 Ser Glu Arg Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser
 180 185 190
 Lys Asp Ser Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp
 195 200 205
 Glu Tyr Glu Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr
 210 215 220
 Ser Thr Ser Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
 225 230 235

<210> 5
 <211> 1314
 <212> DNA
 <213> Mouse

<220>
 <221> CDS
 <222> (0)...(1314)
 <223> Portion of DAV-1 heavy chain used for fusion protein
 bifunctional antibody

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 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 gtc cac tct gag gtc cag ctt cag cag tca gga cct gag ctg gtg aaa 96
 Val His Ser Glu Val Gln Leu Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 cct ggg gcc tca gtg aag ata tcc tgc aag gct tct gga tac aca ttc 144
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 act gac tac aac atg cac tgg gtg aag cag agc cat gga aag agc ctt 192
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 gag tgg att gga tat att tat cct tac aaa ggt ggt act ggc tac aac 240
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80

cag aag ttc aag agc aag gcc aca ttg aca aca gac agt tcc tcc aac	288
Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn	
85 90 95	
aca gcc tac atg gag ctc cgc agc ctg aca tct gat gcc tct gca gtc	336
Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val	
100 105 110	
tat tac tgt gca aga ggg att gct tac tgg ggc caa ggg act ctg gtc	384
Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val	
115 120 125	
act gtc tct gca gcc aaa acg aca ccc cca tct gtc tat cca ctg gcc	432
Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala	
130 135 140	
cct gga tct gct gcc caa act aac tcc atg gtg acc ctg gga tgc ctg	480
Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu	
145 150 155 160	
gtc aag ggc tat ttc cct gag cca gtg aca gtg acc tgg aac tct gga	528
Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly	
165 170 175	
tcc ctg tcc agc ggt gtg cac acc ttc cca gct gtc ctg cag tct gac	576
Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp	
180 185 190	
ctc tac act ctg agc agc tca gtg act gtc ccc tcc agc acc tgg ccc	624
Leu Tyr Thr Leu Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro	
195 200 205	
agc gag acc gtc acc tgc aac gtt gcc cac ccg gcc agc agc acc aag	672
Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys	
210 215 220	
gtg gac aag aaa att gtg ccc agg gat tgt ggt tgt aag cct tgc ata	720
Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile	
225 230 235 240	
tgt aca gtc cca gaa gta tca tct gtc ttc atc ttc ccc cca aag ccc	768
Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro	
245 250 255	
aag gat gtg ctc acc att act ctg act cct aag gtc acg tgt gtt gtg	816
Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val	
260 265 270	
gta gac atc agc aag gat gat ccc gag gtc cag ttc agc tgg ttt gta	864
Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val	
275 280 285	
gat gat gtg gag gtg cac aca gct cag acg caa ccc ccg gag gag cag	912
Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln	
290 295 300	
ttc aac agc act ttc cgc tca gtc agt gaa ctt ccc atc atg cac cag	960
Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln	
305 310 315 320	
gac tgg ctc aat ggc aag gag ttc aaa tgc agg gtc aac agt gca gct	1008

Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335

ttc cct gcc ccc atc gag aaa acc atc tcc aaa acc aaa ggc aga ccg 1056
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350

aag gct cca cag gtg tac acc att cca cct ccc aag gag cag atg gcc 1104
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365

aag gat aaa gtc agt ctg acc tgc atg ata aca gac ttc ttc cct gaa 1152
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380

gac att act gtg gag tgg cag tgg aat ggg cag cca gcg gag aac tac 1200
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400

aag aac act cag ccc atc atg gac aca gat ggc tct tac ttc gtc tac 1248
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415

agc aag ctc aat gtg cag aag agc aac tgg gag gca gga aat act ttc 1296
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430

atc tgc tct gtg tta cat 1314
 Ile Cys Ser Val Leu His
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<210> 6
 <211> 438
 <212> PRT
 <213> Mouse

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Portion of DAV-1 heavy chain used for fusion protein
 bifunctional antibody

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 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140

Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His
 435

<210> 7
 <211> 157
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Tumor necrosis factor-alpha (TNF alpha, mature peptide)

<400> 7
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 1 5 10 15
 Val Ala Asn Pro Gln Ala Glu Gly Gln Leu Gln Trp Leu Asn Arg Arg
 20 25 30
 Ala Asn Ala Leu Leu Ala Asn Gly Val Glu Leu Arg Asp Asn Gln Leu
 35 40 45
 Val Val Pro Ser Glu Gly Leu Tyr Leu Ile Tyr Ser Gln Val Leu Phe
 50 55 60
 Lys Gly Gln Gly Cys Pro Ser Thr His Val Leu Leu Thr His Thr Ile
 65 70 75 80

Ser Arg Ile Ala Val Ser Tyr Gln Thr Lys Val Asn Leu Leu Ser Ala
 85 90 95
 Ile Lys Ser Pro Cys Gln Arg Glu Thr Pro Glu Gly Ala Glu Ala Lys
 100 105 110
 Pro Trp Tyr Glu Pro Ile Tyr Leu Gly Gly Val Phe Gln Leu Glu Lys
 115 120 125
 Gly Asp Arg Leu Ser Ala Glu Ile Asn Arg Pro Asp Tyr Leu Asp Phe
 130 135 140
 Ala Glu Ser Gly Gln Val Tyr Phe Gly Ile Ile Ala Leu
 145 150 155

<210> 8
 <211> 70
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Human Insulin-like Growth Factor 1 sequence
 (IGF-1, mature peptide)

<400> 8
 Gly Pro Glu Thr Leu Cys Gly Ala Glu Leu Val Asp Ala Leu Gln Phe
 1 5 10 15
 Val Cys Gly Asp Arg Gly Phe Tyr Phe Asn Lys Pro Thr Gly Tyr Gly
 20 25 30
 Ser Ser Ser Arg Arg Ala Pro Gln Thr Gly Ile Val Asp Glu Cys Cys
 35 40 45
 Phe Arg Ser Cys Asp Leu Arg Arg Leu Glu Met Tyr Cys Ala Pro Leu
 50 55 60
 Lys Pro Ala Lys Ser Ala
 65 70

<210> 9
 <211> 53
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Epidermal Growth Factor (EGF, mature peptide)

<400> 9
 Asn Ser Asp Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
 1 5 10 15
 Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
 20 25 30
 Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
 35 40 45
 Trp Trp Glu Leu Arg
 50

<210> 10
 <211> 164
 <212> PRT
 <213> Human

<220>
 <221> PEPTIDE
 <222> (0)...(0)

<223> Stem Cell Factor (SCF, mature peptide)

<400> 10
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 1 5 10 15
 Lys Leu Val Ala Asn Leu Pro Lys Asp Tyr Met Ile Thr Leu Lys Tyr
 20 25 30
 Val Pro Gly Met Asp Val Leu Pro Ser His Cys Trp Ile Ser Glu Met
 35 40 45
 Val Val Gln Leu Ser Asp Ser Leu Thr Asp Leu Leu Asp Lys Phe Ser
 50 55 60
 Asn Ile Ser Glu Gly Leu Ser Asn Tyr Ser Ile Ile Asp Lys Leu Val
 65 70 75 80
 Asn Ile Val Asp Asp Leu Val Glu Cys Val Lys Glu Asn Ser Ser Lys
 85 90 95
 Asp Leu Lys Lys Ser Phe Lys Ser Pro Glu Pro Arg Leu Phe Thr Pro
 100 105 110
 Glu Glu Phe Phe Arg Ile Phe Asn Arg Ser Ile Asp Ala Phe Lys Asp
 115 120 125
 Phe Val Val Ala Ser Glu Thr Ser Asp Cys Val Val Ser Ser Thr Leu
 130 135 140
 Ser Pro Glu Lys Asp Ser Arg Val Ser Val Thr Lys Pro Phe Met Leu
 145 150 155 160
 Pro Pro Val Ala

<210> 11

<211> 597

<212> PRT

<213> Artificial Sequence

<220>

<223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and TNF alpha mature peptide

<400> 11
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205

Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His Glu Phe Val Arg Ser Ser Arg Thr Pro
 435 440 445
 Ser Asp Lys Pro Val Ala His Val Val Ala Asn Pro Gln Ala Glu Gly
 450 455 460
 Gln Leu Gln Trp Leu Asn Arg Arg Ala Asn Ala Leu Leu Ala Asn Gly
 465 470 475 480
 Val Glu Leu Arg Asp Asn Gln Leu Val Val Pro Ser Glu Gly Leu Tyr
 485 490 495
 Leu Ile Tyr Ser Gln Val Leu Phe Lys Gly Gln Gly Cys Pro Ser Thr
 500 505 510
 His Val Leu Leu Thr His Thr Ile Ser Arg Ile Ala Val Ser Tyr Gln
 515 520 525
 Thr Lys Val Asn Leu Leu Ser Ala Ile Lys Ser Pro Cys Gln Arg Glu
 530 535 540
 Thr Pro Glu Gly Ala Glu Ala Lys Pro Trp Tyr Glu Pro Ile Tyr Leu
 545 550 555 560
 Gly Gly Val Phe Gln Leu Glu Lys Gly Asp Arg Leu Ser Ala Glu Ile
 565 570 575
 Asn Arg Pro Asp Tyr Leu Asp Phe Ala Glu Ser Gly Gln Val Tyr Phe
 580 585 590
 Gly Ile Ile Ala Leu
 595

<210> 12
 <211> 510
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and IGF-1 mature peptide

<400> 12
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Ser Gly Thr Ala Gly

1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400
 Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His Glu Phe Gly Pro Glu Thr Leu Cys Gly Ala
 435 440 445
 Glu Leu Val Asp Ala Leu Gln Phe Val Cys Gly Asp Arg Gly Phe Tyr
 450 455 460
 Phe Asn Lys Pro Thr Gly Tyr Gly Ser Ser Ser Arg Arg Ala Pro Gln
 465 470 475 480
 Thr Gly Ile Val Asp Glu Cys Cys Phe Arg Ser Cys Asp Leu Arg Arg
 485 490 495
 Leu Glu Met Tyr Cys Ala Pro Leu Lys Pro Ala Lys Ser Ala

500

505

<210> 13
 <211> 493
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and EGF mature peptide

<400> 13
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 305 310 315 320
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 325 330 335
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 340 345 350
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 355 360 365
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 370 375 380
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 385 390 395 400

Lys Asn Thr Gln Pro Ile Met Asp Thr Asp Gly Ser Tyr Phe Val Tyr
 405 410 415
 Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr Phe
 420 425 430
 Ile Cys Ser Val Leu His Glu Phe Asn Ser Asp Ser Glu Cys Pro Leu
 435 440 445
 Ser His Asp Gly Tyr Cys Leu His Asp Gly Val Cys Met Tyr Ile Glu
 450 455 460
 Ala Leu Asp Lys Tyr Ala Cys Asn Cys Val Val Gly Tyr Ile Gly Glu
 465 470 475 480
 Arg Cys Gln Tyr Arg Asp Leu Lys Trp Trp Glu Leu Arg
 485 490

<210> 14
 <211> 613
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Fusion protein with N-terminal portion of DAV-1 heavy chain
 and SCF mature peptide

<400> 14
 Met Gly Trp Ser Trp Ile Phe Leu Phe Leu Leu Ser Gly Thr Ala Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Asp Tyr Asn Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Tyr Ile Tyr Pro Tyr Lys Gly Gly Thr Gly Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ser Lys Ala Thr Leu Thr Thr Asp Ser Ser Ser Asn
 85 90 95
 Thr Ala Tyr Met Glu Leu Arg Ser Leu Thr Ser Asp Ala Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Ile Ala Tyr Trp Gly Gln Gly Thr Leu Val
 115 120 125
 Thr Val Ser Ala Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 130 135 140
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 145 150 155 160
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 165 170 175
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Asp
 180 185 190
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Thr Trp Pro
 195 200 205
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 210 215 220
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 225 230 235 240
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 245 250 255
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 260 265 270
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 275 280 285
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 290 295 300
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln

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<210> 15
<211> 23
<212> DNA
<213> Artificial Sequence
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<220>
<223> PCR primer for amplification of CH3 region of
DAV-1 heavy chain.

<400> 15
cctgctctgt gtttacatga ggg

<210> 16
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer for amplification of CH1 region of
DAV-1 heavy chain

cccagggtca tggagttag 19

<210> 17
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer for amplification of DAV-1 kappa chain CL-A.

<400> 17
 aagatggata cagttgggtgc 20

<210> 18
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR primer for amplification of DAV-1 kappa chain CL-B.

<400> 18
 tgtcaagagc ttcaacagga 20

<210> 19
 <211> 15
 <212> PRT
 <213> Adenovirus

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Peptide spanning integrin binding site on penton base.

<400> 19
 Met Asn Asp His Ala Ile Arg Gly Asp Thr Phe Ala Thr Arg Ala
 1 5 10 15

<210> 20
 <211> 9
 <212> PRT
 <213> Adenovirus

<220>
 <221> PEPTIDE
 <222> (0)...(0)
 <223> Epitope on penton base integrin binding site recognized by DAV-1.

<400> 20
 Ile Arg Gly Asp Thr Phe Ala Thr Arg
 1 5

<210> 21
 <211> 31
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR sense primer for subcloning DAV-1 heavy chain for whole antibody or Fab'2 constructs.

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<400> 21
ggtaccggcca ccatgggatg gagctggatc t 31

<210> 22
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning DAV-1 heavy chain for whole antibody construct.

<400> 22
gaattcatgt aacacagagc agga 24

<210> 23
<211> 35
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning DAV-1 light chain for whole antibody or Fab'2 constructs.

<400> 23
aagcttggcca ccatggagac agacacaatc ctgct 35

<210> 24
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning DAV-1 light chain for whole antibody or Fab'2 constructs.

<400> 24
tcttagatgtc tctaacactc attcctgt 28

<210> 25
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning DAV-1 heavy chain for Fab'2 constructs.

<400> 25
gaattctgtat acttctggga ctgt 24

<210> 26
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning TNF α into DAV-1/TNF α fusion construct.

<400> 26
gaattcgtca gatcatcttc tcgaac 26



<210> 27
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning TNF α into DAV-1/TNF α fusion construct.

<400> 27
gaattctaca gggcaatgat cccaaa 26

<210> 28
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning IGF-1 into DAV-1/IGF-1 fusion construct.

<400> 28
gaattcggac cggagacgct ctgcgg 26

<210> 29
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning IGF-1 into DAV-1/IGF-1 fusion construct.

<400> 29
gaattctaag ctgacttggc aggctt 26

<210> 30
<211> 96
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning EGF into DAV-1/EGF fusion construct.

<400> 30
gaattcaata gtgactctga atgtccccctg tcccacgatg ggtactgcct ccatgatggt 60
gtgtgcatgt atattgaagc attggacaag tatgca 96

<210> 31
<211> 98
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning EGF into DAV-1/EGF fusion construct.

<400> 31
gaattcttagc gcagttccca ccacttcagg tctcggtact gacatcgctc cccgatgttag 60
ccaaacaacac agttgcac 98
atacttgtcc aatgcctc

<210> 32
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR sense primer for subcloning SCF into DAV-1/SCF fusion construct.

<400> 32
gcggccgcaa gggatctgca ggaatcg 27

<210> 33
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> PCR antisense primer for subcloning SCF into DAV-1/SCF fusion construct.

<400> 33
tctagagtgc aacaggggtt aacata 26

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